

# Features, problems and opportunities for the development of transport corridors in the Eurasian Economic Union

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**Abstract.** International transport corridors are a manifestation of transport links between states with the goal to expand economic contacts and develop transit traffic between them. International transport corridors ensure the coordination of transport systems of the participating states for the implementation of prompt, safe, large-scale and cost-effective supply of goods on a regular long-term basis. International transport corridors within the EAEU countries unite various types of transport routes, transport infrastructure facilities, vehicles and transport authorities. The decisive factor in the development of international transport corridors within the EAEU is the spatial localization of this integration grouping in the center of Eurasia between the European Union and China as the two main economic poles. Such location of the EAEU countries determines their opportunities for the transit of goods through their territory. However, the transport complex of the EAEU faces a number of problems that can be minimized through the implementation of promising projects for the development of transport and logistics infrastructure based on attracting investments and coordinating management decisions in the field of regulation of mutual transportation. This study examines the features of international transport corridors passing through the territory of the EAEU countries, analyzes the potential and problems of their development, and identifies opportunities for the implementation of large transport and logistics projects.

## 1 Introduction

Studies of international transport corridors were carried out in the works of many scientists. These studies were of both theoretical and applied regional nature. From theoretical studies of international transport corridors, we first note the definition of their structure with an emphasis on transport infrastructure facilities serving transportation [1] and an analysis of the role of international transport corridors in the formation of a single transport space between the countries through which they pass [2]. Applied research on international transport corridors is of more versatile nature. They are associated with determining the most optimal strategies for development based on methods for modeling the relationships between traffic flows [3] and objects of a multimodal transport network [4], conducting

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expert assessments of individual projects and strategies for the development of transport infrastructure based on the achievements of logistics [5, 6]. Moreover, the main goal of such strategies and projects is to increase the capacity of corridor lines for the transport of goods after their modernization [7].

The study of the role of international transport corridors in the development of national economies and integration associations has intensified in recent years in connection with the development and launch of a new transport and logistics megaproject “One Belt, One Road” initiated by China to ensure sustainable and efficient transportation of goods from East Asia and ASEAN countries to Europe. This project also includes the EAEU states. Among the works on research regarding this project we can note the publications of the Australian scientist Pomfret (2021), as well as scientific groups led by Jiang (2019), Shibasaki (2021) and Ibragimova (2019). Therewith, this megaproject is considered as the integration of land transport corridors (the so-called Silk Road Economic Belt) and shipping routes (called the 21st Century Maritime Silk Road) from Asia to Europe. Given the importance of these international transport initiatives, during the recent years studies of such projects have included not only economic, but also environmental aspects of using transport routes [8], including the search for alternative ways to transport goods [9].

Despite the great attention of scientists from different countries to the issues under study, the issues of the functioning of international transport corridors and their integration into the global transport system require further study. These aspects in relation to international transport corridors passing through the territory of the EAEU states are the subject of our study. Its purpose was to identify and analyze the features and problems of the development of international transport corridors in the EAEU. At the same time, we proceed from the hypothesis that the EAEU, as an actually functioning integration association in the post-Soviet space, can take on important functions in ensuring the transit of large consignments of goods between the countries of Europe and Asia on an ongoing basis with a high level of efficiency and safety of transportation. The degree of implementation of transit links between European countries and China will depend on the effectiveness of the functioning of international transport corridors within the EAEU. In this regard, an analysis of the location and operation of international transport corridors in the EAEU countries allows us to determine the possibilities for their further development in the direction of enhancing freight traffic. Identification and analysis of the problems of these corridors will make it possible to establish restrictions on their development and reduce the corresponding risks that impede realization of the transport and transit potential of the EAEU in international transportation.

## **2 Materials and Methods**

The information basis of this study was the databases of open sources: official data of state statistics bodies of the EAEU as a whole and individual member states, annual analytical reviews of the EAEU Department of Transport and other international organizations, as well as publications of research and expert centers, articles and monographs [10, 11, 12], as well as results of the authors' own research.

The object of this study was a set of international transport corridors that run through the territory of the EAEU countries. During the course of the study, we clarified the interpretation of the concept of international transport corridors, identified and considered the features of their localization on the territory of the EAEU countries, assessed the degree of involvement of transport systems of the EAEU countries in ensuring transit freight traffic, identified and analyzed the problems and opportunities for the development of international transport corridors in the EAEU.

The study used concepts of transport corridors and international transportation, their role in the development of international economic relations between countries, including in relation to the EAEU states [13]. Results of the study were obtained by methods of logical analysis, system generalization, comparative analysis, statistical and cartographic methods.

### 3 Results

In the context of the globalization of economic relations between countries and the increase in growth rates of national economies, there is an increasing need to create an integration transport infrastructure for the export of manufactured goods. Transport takes over the function of spatial movement of produced goods between national economies.

The development of transport contributed to building the most optimal transportation in terms of structure and direction, effective in terms of economic efficiency forms of spatial movement of goods in the form of international transport corridors. The research of scientists includes various types of corridors and their interpretations. Thus, there are such concepts as “development corridors”, “economic corridors”, “multimodal transport corridors”, “transit corridors”, “trade corridors” and others. From a spatial point of view, corridors are links in the international transport network that serve as a spatial connection of economic centers through various modes of transport.

In our study, we considered international transport corridors as integration transport projects of states in the field of international trade relations based on the existing objects of transport and logistics infrastructure. At the same time, international transport corridors are intended to play a significant role in ensuring operational and sustainable foreign trade relations between countries on the basis of combining their transport systems into single flows by land and sea.

Based on official statistics, we studied the opportunities and degree of participation of the transport network of the EAEU countries in international transport corridors (Table 1).

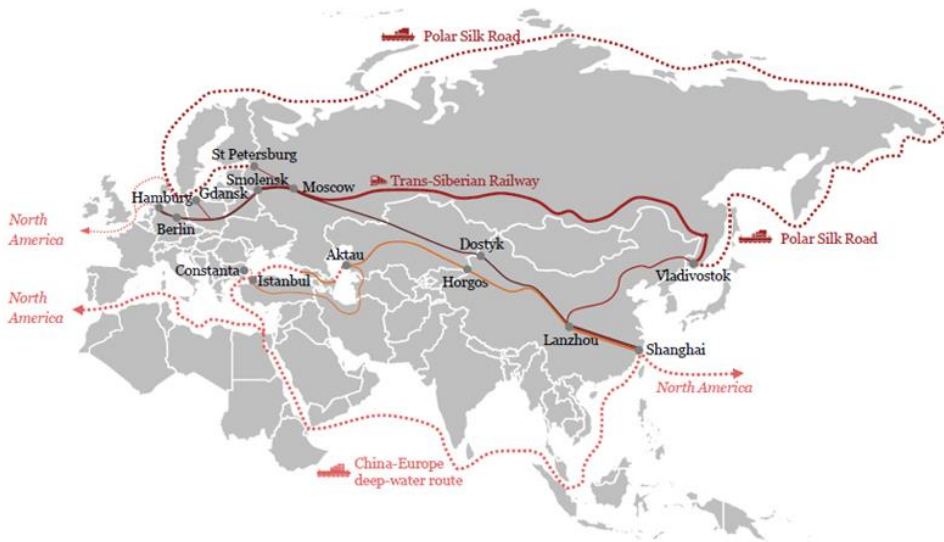
**Table 1.** Development indicators of the transport complex of the EAEU countries.

Country	Length of railways, thous. km	Length of motor roads, thous. km	Volume of transported goods, million tons	Cargo turnover, billion ton-kilometers
Armenia	0.8	7.5	14.8	4.7
Belarus	5.5	103.0	398.7	123.2
Kazakhstan	16.6	95.8	3944.8	588.7
Kyrgyzstan	0.4	0.4	24.6	2.4
Russia	87.0	1553.7	7959.7	5401.1
EAEU, total	110.3	1760.4	12342.6	6115.5

The results obtained allow us to state a significant transport potential of the EAEU countries with the leading role of the Russian Federation in the development of freight traffic. An analysis of the length of transport routes, the structure of transported goods and cargo turnover confirm potential capabilities of the EAEU countries in carrying out transportation in various directions. However, the degree of participation of the EAEU states in the implementation of cargo transportation is different: the vast majority of cargo (64%) is transported through the territory of the Russian Federation, over 32% of the volume of transportation falls on Kazakhstan, and the three remaining EAEU countries together account for only 3.5% of cargo (Table 1). Thus, we can determine the leading role in the development of transport communications along the international transport corridors of Russia and Kazakhstan, and the secondary role of other EAEU states.

Several international transport corridors pass through the territory of EAEU states (Fig. 1):

- Western Europe – China. This transport corridor is represented by a highway with a length of 8.4 thousand km, of which 2.2 thousand km passes through the territory of Russia, 2.8 thousand km through the territory of Kazakhstan and 3.4 thousand km through the territory of China.
- Trans-Siberian Railway. This is a part of the East – West land transport corridor in the direction of Japan – Russia – Europe and one of the longest railways in the world, its length is almost 9.3 thousand km. This double-track, fully electrified railway allows transporting up to 100 million tons of cargo per year, including in the form of international transit of container cargo at the level of 200-300 thousand TEU from the countries of the Asia-Pacific region to Europe and Central Asia.



**Fig. 1.** International transport corridors in Eurasia.

- North – South. This corridor provides a transport link between the Baltic States and India through the territory of Russia and Iran with the transportation of goods along the Caspian Sea or bypassing it through the territory of the Caspian states (in this case, the railways of Kazakhstan are built into the route). This corridor creates the most favorable conditions for the transportation of goods between the Middle East and Northern Europe. However, it has not yet been fully operational due to insufficient transport and logistics infrastructure, which does not allow for the docking of transport systems of neighboring states.
- Northern transport corridor. This is the shortest sea route between Europe and East Asia. Its route is based on the Northern Sea Route, which runs from Murmansk to the port of Pevek in Chukotka. The northern transport corridor has a length of over 14 thousand km, but this is 1.7 times less in length than the alternative sea route from Murmansk to Japan through the Suez Canal, which is 24 thousand km long. Russia positions this international transport corridor as the safest transport communication in the Arctic and offers its route for the transit of goods from the ports of the Baltic and Northern Europe to the ports of China, bypassing the Indian Ocean and the Suez Canal. Over the past 20 years, the cargo turnover of the Northern Sea Route has increased by more than 10 times (Table 2), which indicates its demand in international transportation.

**Table 2.** Volume of cargo transported along the Northern Sea Route (including transit cargo) during 2000-2020, thous. tons.

Year	2000	2005	2011	2015	2018	2020
Volume of cargo transported	1600	2000	3111	5392	10691	32970

## 4 Discussion

The system of international transport corridors passing through the territory of EAEU states is important, since it not only realizes the transit potential of these states, but also allows them to carry out their own export-import deliveries of goods to world markets. The active participation of EAEU states in the functioning of international transport corridors is due to the favorable geographical position of the participating states. The presence of an extensive transport network, through which mass transportation is carried out between European states and the countries of the Asia-Pacific region, strengthens the role of EAEU states in the implementation of transit freight. The direct proximity of EAEU states to China, as the world's leading economy, land access to the transport routes of the states of South and South-West Asia, the presence of seaports in the waters of three oceans are factors that determine the importance of the EAEU in the functioning of existing transport corridors.

However, the analysis of localization of international transport corridors in the space of EAEU states shows a different degree of their involvement in international transport corridors. Due to the characteristics of their geographical location, Russia and Kazakhstan are most actively involved in the system of international transport corridors – they have a diversified transport network, are well equipped with transport and logistics infrastructure and take part in the implementation of cargo transportation in the direction of China – Europe, including along the route of the Silk Road Economic Belt. Belarus is involved to a lesser extent in the functioning of international transport corridors, where it carries out the transit of goods through its transport system mainly in the direction of ports on the Baltic Sea. Armenia and Kyrgyzstan actually turned out to be excluded from international transport corridors due to the properties of their geographical position, lack of access to the sea and mountainous terrain.

The degree of integration of EAEU states into international transport corridors depends on a number of factors and has certain problems. We systematized these problems into three groups:

1. Restrictions related to the transport and logistics infrastructure, which require large financing, since the modernization of infrastructure facilities is impossible without financial investments.

2. Economic restrictions associated with the pricing policy in the implementation of transit traffic within the national segments of international transport corridors. Thus, in particular, China is seeking to reduce the cost of delivering containerized cargo to Europe by rail by subsidizing this type of transportation, which makes it possible to keep the level of tariffs for such transportation at levels acceptable to consumers. The EAEU states, due to limited budgets and a smaller scale of development of their national economies, do not have such an opportunity for tariff regulation of transportation along their highways included in transport corridors. This makes their transport and transit services less competitive compared to, for example, cheaper shipping by sea.

3. Administrative and legal restrictions related to legal issues and the lack of unification in the rules for the carriage of goods along international transport corridors. This is expressed in the absence of unified legal documents that would regulate the general norms and rules for the transportation of goods along separate sections of international transport corridors located within different states. For example, in most European countries, rail transportation is regulated by the provisions of the Convention on International Carriage by Rail, and in the EAEU countries and some other states, by the Treaty on International

Freight Transport. To facilitate the conduct of border and customs operations and the efficiency of these actions, intensive work is needed to unify customs and border rules and procedures. This will reduce the time required for border and customs control operations, simplify these formalities and make them more transparent.

As for the ways to solve these problems and remove the identified barriers and restrictions, one of the alternatives may be the implementation of not large-scale, but targeted, urgent infrastructure projects that will significantly simplify freight traffic along international transport corridors. Thus, in order to increase the capacity of overland transport routes along the China – EAEU – EU states route, one can use the expansion of bottlenecks in the transport infrastructure that do not require large investments, as in the construction of additional railway lines, and manage with local engineering and technical measures. For example, one of the ways to improve the effective functioning of the system of international transport corridors can be the creation of auxiliary transport and logistics terminals on the territory of EAEU member states. These centers should promptly process containerized cargo from China or Europe in the border areas of the EAEU and further distribute them for transportation by rail or road along the routes of international transport corridors.

It is also necessary to strengthen the marketing policy in order to activate freight traffic within the international transport corridors passing through the EAEU. Insufficient awareness of shippers about the advantages of using the transport routes of the EAEU countries in ensuring the transit of goods prevents attraction of new customers. Therefore, it is necessary to popularize information on rail and road freight transportation along the China – EAEU – EU routes, which in turn should increase freight traffic and improve transport services for business partners.

A means of accelerating transportation along international transport corridors is also the digitalization of cargo handling operations at the junctions of highways of border countries. To implement this priority area, the EAEU states have approved a list of services that will first be converted into digital form. Such digitalization should be carried out in full by 2025, but maps of roads and road infrastructure included in transport corridors will be digitized among the first elements. This digital service will provide access to official, reliable and promptly corrected cartographic information. The list of digitalization services also includes booking a queue at automobile checkpoints, remote medical examination of drivers, and most importantly, filling out an electronic consignment note, an electronic waybill and an electronic weight and dimensional control protocol. Thus, the ecosystem of digital transport corridors of the EAEU is designed to help business partners exchange logistics information throughout the supply chain in an efficient secure environment, as well as provide legally significant electronic interaction with authorized bodies within countries and at the international level.

## **5 Conclusions**

The analysis of international transport corridors in the EAEU revealed a number of characteristics:

- The EAEU states having an advantageous transport position, being in close proximity to the two leading expansion poles of the world economy – Western Europe and China. This allows them to successfully integrate into the routes of existing international transport corridors.
- International transport corridors in the EAEU are characterized by multimodality, but their structure is dominated by rail and road transport.
- The EAEU states have a fairly high potential for intermodal transportation of goods in various directions.

- Russia is a key participant in international transportation among the EAEU states accounting for 88% of the total cargo turnover of the EAEU states.
- Russia, Belarus and Kazakhstan are most actively involved in the operation of international transport corridors. It is these countries that carry out the largest volume of transit traffic in the EAEU space.

Obviously, the transport systems of the EAEU can provide the shortest transcontinental links between Europe and Asia, so their integration will not only lead to an increase in the volume of transit traffic, but will also actively promote the development of all countries of the Eurasian continent. However, there is a set of problems regarding inclusion of transport networks of the EAEU states into international transport corridors. First of all, such problems include different levels of development of the transport infrastructure of the EAEU member states, lack of funding for its modernization, problems of unification and pricing policy in determining tariffs for the transit of goods. Elimination of these problems will ensure the optimization of transportation costs, expand the possibilities of the EAEU states for international transport cooperation, including for attracting investments in cross-border transport projects.

Most of the international transport corridors that run through the territory of the EAEU states are implementing The Silk Road Economic Belt international project initiated by China. Creation of a modern transport and logistics infrastructure, simplification of customs procedures and removal of unnecessary border bureaucratic barriers that impede the development of mutual trade, creation of more flexible tariffs for transportation, creation and implementation of a single market for transport and logistics services using modern digital technologies for their provision and transportation management can be the directions of conjugation of the New Silk Road and the states of the EAEU. The implementation of this set of measures of interstate cooperation in the transport sector will bring the EAEU states to a new level of their interaction with other states, activate the transport potential of the EAEU, optimize the routes of the transport network, and upgrade the transport infrastructure through investment. This will have a positive impact on the development of the economies of EAEU member states, will ensure their economic growth and strengthen their cooperation in the transport sector.

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